Automated IPv6 Readiness Assessment and Migration Planning

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Agenda

• OPNET Corporate Overview
• IPv6 Migration Considerations
• Fundamentals of a Sound Migration Strategy
  – Documenting your network
  – IPv6 Network Readiness Assessment
  – Automated IPv6 Network Design
  – Predicting the impact of IPv6 on your network
• Conclusion
Corporate Overview
- Founded in 1986
- Publicly traded (NASDAQ: OPNT)
- HQ in Bethesda, MD
- Approximately 600 employees
- Worldwide presence through direct offices and channel partners

Best-in-Class Solutions and Services
- Application Performance Management
- Network Engineering, Operations, and Planning
- Network R&D

Strong Financial Track Record
- Long history of profitability
- Trailing 12-month revenue of over $120M
- Approximately 25% of revenue re-invested in R&D

Broad Customer Base
- Corporate Enterprises
- Government Agencies/DoD
- Service Providers
- Network Equipment Manufacturers
OPNET’s Solutions for Network Engineering, Operations, and Planning

- **Complementary suite** of solutions leveraging a rich behavioral network model, based on operational network data

- **Full life-cycle** coverage
  - Pre-deployment and planning
  - Continuous network engineering
  - Reliable network operations

- Combined **on-line and off-line analytics** for:
  - Network design and optimization
  - Network configuration assurance
  - Automated network documentation
  - Real-time visualization and situational awareness
IPv6 Migration Considerations

- Industry analysts: migration to IPv6 is a major network transition that requires considerable planning.

- Errors could result in costly network outages, security gaps, and application performance problems.

- A few of the questions that need to be addressed prior to migration:
  - What is in my network today? Which parts need to be upgraded first?
  - Do existing network devices support IPv6? If not, can they be upgraded?
  - What migration strategy should be used for addressing, tunneling, etc?
  - How will existing legacy applications perform over IPv6?
  - Will network capacity be adequate to support migration to IPv6?
  - How will operational integrity and network security be ensured during the incremental migration?
Fundamentals of a Sound Migration Strategy

• Incremental migrations are more manageable and minimize risk
  – Existing network is sub-divided into smaller parts
  – Each part is transitioned separately to minimize risk to overall network

• Migration involves several phases
  – Document the current state of your network
  – Assess the “IPv6 readiness” of existing equipment
  – Upgrade equipment and implement transition mechanisms
  – Predict the network impact of IPv6

• Network design software accelerates network migration and mitigates associated risks
  – Software can automatically document the network and validate equipment compatibility quickly and efficiently
  – Automated workflows facilitate network design especially for users who have limited experience with IPv6
Step 1: Document your Network

• Before making any changes to your network, make sure you understand:
  – The devices in your network
  – The physical and logical interconnectivity of devices
  – How the devices are configured

• OPNET provides:
  – Automated up-to-date network diagrams
  – Available in Visio® format
  – Comprehensive and detailed unified network views
    • Physical layouts
    • Detailed configuration information
    • Logical views: L2/3, VPN, OSPF, BGP, VLANs, etc.
    • Custom annotations
Step 2: Assess IPv6 Readiness

• What does IPv6 readiness mean?
  – Software (OS) readiness
    • All features may not be available in all releases
    • E.g. addressing, routing, QoS, multicast, security, etc.
  – Platform readiness
    • Most vendors support IPv6 on all platforms
  – Hardware readiness
    • Additional RAM/CPU may be required
    • Additional requirement depends on network size and design

• OPNET provides:
  – Automated rules-based assessment of device capabilities with IPv6 features
  – Comprehensive reports detailing compliant and non-compliant equipment
  – Integrated authoring environment for customizing rules
Step 3: IPv6 Migration Design

- Incremental migration from IPv4 to IPv6
  - Identify subnets and devices need to be migrated
    - E.g. migrate your core first
  - Upgrade all non-compliant devices
  - Identify tunnels that need to be enabled on each subnet
  - Determine IPv6-compatible routing protocol(s) to be deployed

- OPNET provides:
  - A guided workflow to automatically generate designs that transition existing IPv4 networks to IPv6, supporting multiple transition mechanisms
  - Recommendations on changes required
    - Capacity and configuration changes
    - Equipment enhancements
    - Tunnels and dual-stack devices
Step 4: Predict the Impact of IPv6

• IPv6 can impact:
  – Network capacity and performance, due to larger overhead and changes in routing
  – Network security due to changes in addressing and security features
  – Network survivability

• OPNET provides:
  – What-if analysis to predict the impact on different IPv6 migration scenarios
  – Automated network capacity planning
  – Optimization of routing metrics and QoS to guarantee network performance
  – Auditing of routers, switches, firewalls to identify misconfigurations and security gaps
  – Failure impact analysis
  – Comprehensive before-after reports
Conclusion

- IPv6 migration requires considerable planning and understanding of the impact on your network

- Step by step migration plan
  - Document the current state of your network
  - Assess the “IPv6 readiness” of existing equipment
  - Upgrade equipment and implement transition mechanisms
  - Predict the network impact of IPv6

- OPNET software accelerates network migration and mitigates risk, through automation, guided workflows, and targeted what-if analysis
Additional Information

• Visit OPNET’s website at www.opnet.com/ipv6

• Free White Paper available on IPv6 Migration Planning

• Send an email to info@opnet.com for a web demo of our solutions

• Visit our booth later today!